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ARCHAEOLOGY OF THE MOGOLLON HIGHLANDS: SETTLEMENT SYSTEMS AND ADAPTATIONS

edited by Yvonne R. Oakes and Dorothy A. Zamora

VOLUME 1. DEFINING THE MOGOLLON

Yvonne R. Oakes Glenn S. Russell

Submitted by
Timothy D. Maxwell
Principal Investigator

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ARCHAEOLOGY OF THE MOGOLLON HIGHLANDS: SETTLEMENT SYSTEMS AND ADAPTATIONS

VOLUME 1. DEFINING THE MOGOLLON

VOLUME 2. SITE DESCRIPTIONS

VOLUME 3. ANALYSES OF CHIPPED AND GROUND STONE ARTIFACTS

VOLUME 4. CERAMICS, MISCELLANEOUS ARTIFACTS, BIOARCHAEOLOGY, BONE TOOLS, AND FAUNAL ANALYSIS

VOLUME 5. ANCILLARY STUDIES: BOTANY, PALYNOLOGY, PHYTOLITH AND PARASITE ANALYSIS, RESIDUE STUDY, AND GEOMORPHOLOGY

VOLUME 6. SYNTHESIS AND CONCLUSIONS

ADMINISTRATIVE SUMMARY

The Luna Project began in 1989 with a 30.7 km (19.1 miles) survey by the Office of Archaeological Studies (OAS), Museum of New Mexico, along U.S. 180 from the Pine Lawn Valley north to Luna, within the Mogollon Highlands in Catron County, New Mexico. As a result of this and subsequent surveys in the area, 25 archaeological sites were recommended for excavation prior to road-widening of U.S. 180 and NM 12 by the New Mexico State Highway and Transportation Department (NMSHTD). Work was completed in four separate phases concomitant with the various NMSHTD projects, ending in December 1995. Most excavations were on land administered by the Gila National Forest; only three sites were partially on private land. Yvonne R. Oakes, assisted by Dorothy A. Zamora, served as project director. David A. Phillips, Jr., former director of OAS, and Timothy D. Maxwell, current director, were principal investigators.

The 25 excavated sites include 6 Archaic components (LA 37917 [AR-03-06-06-00824], LA 43766 [AR-03-06-06-00828], LA 45508, LA 70188 [AR-03-06-03-00056], LA 78439 [AR-03-06-06-00835], and LA 89846 [AR-03-06-03-03723]), 4 Early Pithouse period components (LA 39972, LA 39975 [AR-03-06-06-00372], LA 45508, and LA 70201 [AR-03-06-06-00833]), 6 Late Pithouse period components (LA 3563 [AR-03-06-06-00277], LA 43786 [AR-03-06-06-00416], LA 45507, LA 45510 [AR-03-06-03-00056], LA 70196 [AR-03-06-06-00832], and LA 70201 [AR-03-06-06-00833]), 5 Early Pueblo period components (LA 39969 [AR-03-06-06-00828], LA 39972, LA 43766, LA 70189 [AR-03-06-06-00830], and LA 75792 [AR-03-06-06-00286]), 6 Late Pueblo period components (LA 3279 [AR-03-06-03-00159], LA 39968 [AR-03-06-06-00827], LA 70185 [AR-03-06-03-00285], LA 75791 [AR-03-06-06-00834], LA 78439 [AR-03-06-06-00835], and LA 89846 [AR-03-06-03-03723]), 6 probable Athabaskan components (LA 37917 [AR-03-06-06-00825], LA 37919 [AR-03-06-06-00826], LA 70188 [AR-03-06-06-00830], LA 70189 [AR-03-06-06-00442], LA 75791 [AR-03-06-06-00834], and LA 89846 [AR-03-06-03-03723]), and 3 of unknown affiliation from redeposited sites (LA 9721 AR-03-06-06-00824], LA 70191 [AR-03-06-06-00831], and LA 89847 [AR-03-06-03-03724]). Excavated sites range from the several downslope redepositions to 10 rooms and a great kiva at a large Late Tularosa phase pueblo, LA 3279 [AR-03-06-03-00159], dating A.D. 1275-1325. A total of 2,581 cu m of dirt was removed from the sites by either hand or mechanical equipment and 254,694 artifacts were recovered. Dating of the sites was possible through ceramic cross-dating, and 182 radiocarbon or archaeomagnetic assays were supplemented by several obsidian hydration samples.

The broad temporal variability in sites allowed for many avenues of comparison. Subtle changes in subsistence availability and exploitation, ground stone and lithic artifact form and function, and ceramic styles and their trade were monitored and compared with results from other excavated sites within the Mogollon Highlands. The large data base amassed by the OAS excavations and studies has created an unprecedented opportunity to examine settlement dynamics on a regional scale within this particular area of the Southwest. Population ebb and flow has been documented for the different Mogollon periods, and site growth through time can now be charted, leading to a more synthetic understanding of land-use patterns by prehistoric peoples of the region.

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2. State Land Permit: Excavation Permit SE-70.

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THE ATHABASKAN OCCUPATION OF THE MOGOLLON HIGHLANDS

ATHABASKANS IN THE SOUTHWEST

Most discussions related to the origins of the Athabaskan peoples in the Southwest are concerned with either their route of entry into the region or the time of their arrival. For this particular report, route of entry is a challenging research pursuit, but one that does not provide information regarding the Athabaskan occupation of the highlands. Briefly stated, there are two routes generally considered as possible entry corridors. One is by way of the High Plains from ultimately across the Bering Strait (Hodge 1895; Gunnerson 1956; Wilcox 1979; Schaafsma 1981; Towner and Dean 1996). Thus, the Athabaskans would have entered New Mexico from the east spreading gradually into the Rio Grande Pueblo areas and finally to western New Mexico at a later time (Wilcox 1981; Upham 1982). The other possible route is via the mountains on the west side of the Continental Divide (Thomas 1907; Amsden 1932; Spencer 1947; Riley 1954; Brugge 1983; Perry 1991). Lightfoot (1983:217) states that the intermontane route is no longer a viable consideration. Other researchers, however, disagree and continue to find evidence of very early sites in the San Juan region of northwestern New Mexico, supporting an intermontane route (Hancock 1992:287; Brown 1996:68). In reality, both routes could have served as viable entry corridors, perhaps at different times in prehistory; however, no one has explored this possibility.

The other issue related to Athabaskan origins concerns the timing of their appearance in the Southwest. An examination of initial entry times is extremely important for understanding subsequent Athabaskan occupations in the Mogollon Highlands. However, this is one of the most debated issues in the archaeology of late Southwestern prehistory or early protohistory. Archaeologists seem to either support an early 1500s or earlier entry or a later post-1600s appearance. In earlier days of research into this topic, most thought that entry into the Southwest was relatively late, ca. post-1600 or just after Spanish contact (Gregory 1981; Schaafsma 1981; Upham 1982) by way of the High Plains. More archaeologists are now probably willing to assign a date between 1500 and 1600 to Athabaskan entry into New Mexico (Gunnerson 1956; Kaut 1974; Wilcox 1981; Perry 1991). By the 1980s, many researchers were agreeing to a 1400s arrival date in the region, concurring with Hodge (1895), who believed this earlier entry was possible long before it was accepted by others. Proponents of a 1400s date include Opler (1983), Hogan (1989), Brown (1990), Brugge (1992), and Hancock (1992). Dates are increasingly based on results of radiocarbon analyses of Athabaskan sites. Interestingly, there are some very early estimated dates for the Athabaskan entry into New Mexico including the pre-A.D. 900s (Willey 1966) and the 1300s (Goddard 1907; Goodwin 1937; Harrington 1940; Hall 1944; Forbes 1966).

Those who accept an intermontane route for the initial entry of Athabaskans into northwestern New Mexico, specifically the upper San Juan Basin, assign dates ranging between 1600 and 1800 (Aschmann 1974; Lightfoot 1983; Pool 1985; Towner and Dean 1996). Earlier dates between 1450 and 1550 are supported by more recent research by Hogan (1989), Hancock (1992), and Brown (1996). These dates for entry into northwestern New Mexico are important for affixing dates to Athabaskan entry into the Mogollon Highlands of southwestern New Mexico, which derived presumably from the San Juan area or central New Mexico in the Acoma area. The earliest date suggested in the extant literature is 1583 (Schroeder 1963:7). Schroeder notes that Querechos (thought to be Apaches) were seen by Espejo at Acoma Pueblo.

Added to this mixture of possible entry dates are several interesting comments gleaned from some earlier documents. Forbes (1960:xvii-xviii) notes that the Pima in Arizona say that Athabaskans forced the abandonment of Casa Grande north of Phoenix in the 1400s. He also comments that White Mountain and San Carlos Apaches had contact with Pueblos at Dewey Flat on the Lower Gila in the 1400s. One other observation he records is that Benavides in 1694 (Forbes 1960:xvii) states that the Apaches of New Mexico often thought of themselves as the "original" people of the area, not the Pueblos. Also, Goodwin (1942:63) tells of a Western Apache oral tradition that places Western Apaches in the same areas as still-occupied pueblos, and that raiding of these communities by the Apaches occurred. This could have been as early as the 1500s in some areas of east-central Arizona.

To further assist in determining when the Athabaskans may have entered the Mogollon Highlands, historically documented sightings and Athabaskan events are examined (Table 1.7) along with a later look at the available archaeological data. The table is long and extends from the 1400s to the early 1900s when

Table 1.7. Chronology of Dated Athabaskan Sightings and Sites

Date	Location	Event	Reference
1400s	Casa Grande, AZ	Pimas say Athabaskan forced abandonment	Forbes 1960:xvii
1400s	Dewey Flat on Gila River, AZ	White Mtn. and San Carlos Apache say contacted Pueblos in area	Forbes 1960:xvii
1400s	Tonto Basin, AZ	Cliff dwellers chased by Apaches	Forbes 1960:xvii
1415	San Francisco Mtns., Reserve	C-14 date at Raven's Roost	Oakes, this report
1440	San Francisco Mtns., Reserve	C-14 date at Rocky Hill	Oakes, this report
1445	San Francisco Mtns., Reserve	C-14 date at Apache Woods	Oakes, this report
1475	Luna Valley	C-14 date at Haca Negra	Moiola, this report
1490	Picacho Mtns, AZ	C-14 date at Buried Dune site	Bayham and Morris 1990:31
1500	Santa Rita, NM	C-14 dates at LA 112354	Rogge et al. 1998
1540	Chichilticale Pass, AZ	Sighted by Casteñeda	Forbes 1960:8-9
1560	San Francisco Mtns., Reserve	C-14 date at Rocky Hill	Oakes, this report
1575	San Francisco Mtns., Reserve	C-14 date at Lightning Strike	Oakes, this report
1581	San Marcial on Rio Grande	Trading with Piro pueblos	Hammond and Rey 1928:286
1583	Little Colorado River area, AZ	Luxan saw warlike and mountainous people	Hammond and Rey 1929:105
1583-1599	Acoma and west of Zuni	Sighted by Antonio de Espejo	Schroeder 1963:6
1590	Datil area	C-14 date at Elk Crossing	Oakes 1996
1610	Chaco River area	C-14 dates	Eschman 1983:384
1610	Datil area	IC-14 date at Dust Devil Hill	Oakes 1996
1620	Below Socorro	Enmity with Piro Pueblos	Hodge et al. 1945:82
1620s	14 leagues west of Senecu pueblo	Benavides noted Athabaskans	Hammond and Rey 1966:232
1630	Headwaters of Gila	Noted by by Benavides	Hodge et al. 1945

Table 1.7. Continued.

Date	Location	Event	Reference
1630	Sevilleta Pueblo	Rebuilt after destruction by Athabaskans	Hodge et al. 1945
1640	Zuni	Athabaskans present	Schroeder 1963:7
1650	San Pedro Valley, AZ	C-14 date at Lone Hill site	Agenbroad 1978:68
1658	Zuni	Athabaskans raided pueblo	Schroeder 1963:7
pre-1661	Grasshopper Spring, AZ	Tree-ring date on wickiup with stone ring	Reid 1998:198
1661	Senecu pueblo	Depopulated due to Athabaskans	Hackett 1937:292
1666	Acoma pueblo	Spanish campaign against Apache	Schroeder 1963:7
1668-1680	Piro and Tompiro areas	Great damage from Apache raids	Scholes 1930:400-401
1672	Zuni	Priest killed in Apache attack	Schroeder 1963:7
pre-1680	San Pedro, AZ	Father Kino says Apache trading with Zuni	Danson 1957:112
pre-1680s	Sonora, Mexico	Father Kino says Apaches present	Hammond 1931:41
1680-1699	Headwaters of Gila River	Stronghold of Apaches	Schroeder 1952:144-145
1681	Senecu pueblo	An Apache camp there	Hackett and Shelby 1942:203
1686	Sonora, Mexico	Fray Alonso de Posada says Apaches invaded from 125 miles to north	Tyler and Taylor 1958:301
1692	Mogollon Highlands	Warm Springs Apaches present	Buskirk 1949
post-1700	San Francisco Mtns, Reserve	C-14 dates from Rocky Hill	Oakes, this report
1740-1750	San Francisco Mtns, Reserve	C-14 dates at Raven's Roost	Oakes, this report
1746	Gila River	Strong Apache presence	Ives 1939
1747	Gila River	Zuni and Spanish attacked Apaches	Ferguson and Hart 1985:60
1754	San Francisco River area	Noted by Zuni and Spanish	Ferguson and Hart 1985:60
1756	Pyramid Mtns, near Lordsburg	Two Apaches killed	Kessell 1971:146
1756	Cliff	Soldiers and Tarahumara archers met to track Apache	Kessell 1971:133

Table 1.7. Continued.

Date	Location	Event	Reference
1757	Gila River area	Apaches trading with sheep-raisers to north	Kessell 1971:142
1766	Gila, Mimbres, San Francisco rivers	Noted by Nicolas de Lafora with Marques de Rubi party	Kinnaird 1958
1780s	All areas	Pursuit by govt. to break up Apache and Navajo alliances	Kessell 1971:144
1785	Cliff	Seen by Cordero expedition	Kessell 1971:149
1788	Headwaters of Gila River	Jacobo Ugarte y Loyola fought with Chiricahua	Hammond 1931:43
1788	Sierra de la Floridas, AZ	Captain Don Manuel de Echeagary fought with Apaches	Hammond 1931:43
1795	Mogollon and San Francisco Mtns	Seen by Don Jose de Zuniga	Hammond 1931:43
post-1795	Globe-Miami area, AZ	C-14 date on roasting pit at Mazatzal Mtns	Ciolek-Torrello 1987
1796	Headwaters of Gila River	Apaches present	Matson and Schroeder 1957:352
late 1700s	Upper Salt River, White Mtns, north of Gila River	Apaches present	Schroeder 1963:18
1800	Zuni and Hopi	Trading with Apache	Lightfoot 1983:203
1806	Mogollon Mtns	Apaches and Navajos present	Schroeder 1963:11
1811	San Mateo Mtns	Apache and Navajo hostility	Schroeder 1963:12
1813	Datil Mtns	Apaches and Navajos present	Schroeder 1963:12
1813	Laguna and Acoma	Apaches present	Schroeder 1973
1816	Mogollon Mtns	Apaches and Navajos present	Schroeder 1963:12
1835	Sonora and Chihuahua, Mexico	Offered 100 pesos for Apache scalp	Thrapp 1967:10
1838	Gila Forest area	Navajos fled into country	Schroeder 1963:12
1840s	Gila River area	Full of Apaches	Colyer 1872:5
1850-1870	Mimbres Mtns	Mimbreno Apaches present	Ogle 1970:8
1852	Socorro and Valencia Counties	Coyotero and Gila Apaches present	Schroeder 1963:12
1856	Acoma	Mangas Colorado raided area	Schroeder 1974

Table 1.7. Continued.

Date	Location	Event	Reference
1885	Mogollon Mtns	Head of Teepee Canyon	McFarland 1974:25
1885	Near Alma	Englishman killed at WS Ranch	McFarland 1974:29
1885	Silver City	Apaches present	Thrapp 1967:323
1885	Mogollon Mtns	Apaches trailed from WS Ranch to San Francisco R and up Deep or Devil's Creek	French 1990:66
1885	Alma area	Seen crossing Robert's Park and on Duck and Buckhorn Creeks	French 1990:75,81
1885	San Francisco Mtns	Navajo scouts at SU Ranch, Camp Maddox on Pueblo Creek, and on Blue	French 1990:84-85
1885	Gila area	On Upper Gila and Sapello Creek	French 1990:85
1886	Alma area	On Soldier's Hill	French 1990:115
1900	Mimbres and Black Range	At head of Mogollon Creek, killed in north end of Black Range	McFarland 1974:56
1900-1935	Globe, AZ	Wickiup on Rancho Creek	Vivian 1970:125
1928-1930	Sierra Madres, Mexico	Some Chiricahua Apaches remaining in mountains	Opler 1987:28

Athabaskans are no longer present in the area. Figure 1.21 indicates the locations of these occurrences, plotted in order to observe possible patterns of movement over time from north to south, as suggested by researchers.

It is noteworthy that several sources in Table 1.7 also suggest an Athabaskan presence in southwestern New Mexico and Arizona in the 1400s. Admittedly, some of these dates are based on tribal memory or single radiocarbon dates, which can both vary by one hundred years or more. However, both sources could also be correct, indicating a true Athabaskan presence at this early date. There are several researchers who believe Athabaskans were in the Southwest at this time and possibly even earlier (Forbes 1960; Willey 1966; Opler 1983; Brugge 1992; Hancock 1992). An examination of population estimates for later time periods may give a clue to why some consider this early settlement date possible.

Hodge et al. (1945:89) state that Benavides estimated an Athabaskan population at the time of contact at 200,000 persons. Benavides also commented that the Apaches had more people than all the nations of New Spain together (Ayer 1916:39). Hammond and Rey (1966:232-233) note that in the 1620s, numerous accounts of Spanish chroniclers document an Athabaskan presence numbering in the tens of thousands. Thus, they argue that it is difficult to believe that Athabaskans were only few in number less than 100 years earlier in the mid-1500s or that they had just entered the Southwest, as many researchers today propose (Wilcox 1979; Gregory 1981; Schaafsma 1981; Perry 1991). Hammond and Rey (1966:234) say that either the low numbers at this time must be rejected or else there were many Pueblo refugees counted as Athabaskans in the 1600s.

Brugge (1981:284) takes up the same line of thinking, arguing again that by the late 1500s, Athabaskans could not have just arrived in the Southwest with an attendant low population. He contends the choice must be between a late arrival of many people in the 1500s or an earlier arrival with a low population. Basing his judgment on early Spanish accounts that cite numbers of Athabaskans present at the time of contact, he opts for an earlier arrival. Using data from Hill (1940), he notes Athabaskan populations in 1740 were estimated at 3,000-5,000. Plotting backwards, Brugge (1981:284) states that this figure would yield a contact population of 40,000-50,000, given no detracting factors. He believes

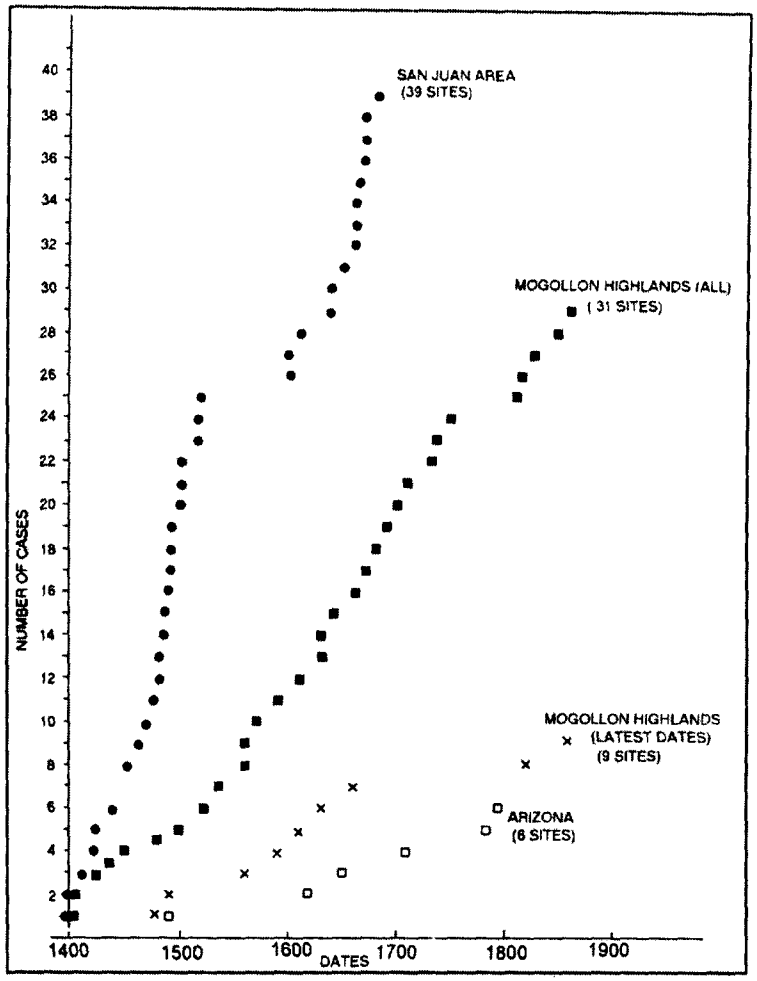

Figure 1.21. Comparative dates for Athabaskan sites.

that figure could be as low as, but probably no lower than, 30,000 people. He concludes, after looking at the several choices these figures present, that an assumed arrival by 1400 is definitely possible, and calculates that a doubling of population every 50 years would yield a contact population of 30,000 and an arrival population of 3,750 (Brugge 1981:286). However, if the contact population was larger than 30,000, as suggested by Benavides (Hodge et al. 1945:89), then the entry date could conceivably be pushed back even farther.

Athabaskan Presence in the Mogollon Highlands

The Mogollon Highlands and adjacent eastern Arizona have a total of three sites with radiocarbon dates in the 1400s (Fig. 1.21). While problems with dating old wood could exist, the dates must be considered possible indicators of very early occupation of the region. This would, therefore, push an entry date in northern or eastern New Mexico back to at least the 1300s as suggested by several researchers (Goddard 1907; Goodwin 1937; Harrington 1940; Hall 1944; Forbes 1966; Willey 1966; Opler 1983; Palmer 1992). Figure 1.21 also indicates that most of the earliest dated Athabaskan sites are in the San Juan area of northwest New Mexico, while sites in Arizona do not appear until ca. 1500. All of the radiocarbon dates for the Athabaskan sites in the Mogollon Highlands are given in Figure 1.21, along with only the latest date for each of nine sites. Using only the latest dates may adjust somewhat for the old wood problem and suggests that sites in the highlands do not appear until at least ca. 1475 rather than 1400.

In the 1500s, historical sightings by Spanish explorers place Athabaskans or Athabaskan-like peoples at Chichilticale in southeastern Arizona, among the Piro Indians on the Rio Grande, in the Little Colorado River area, at Acoma, and west of Zuni (see Table 1.7). Six

radiocarbon dates also place Athabaskans at Datil, in the San Francisco Mountains near Reserve, and near Santa Rita at this time. More encounters are documented for the 1500s, stretching from the Rio Grande to southern Arizona, including the area immediately to the west of the Mogollon Highlands, suggesting the six C-14 dates obtained within the Mogollon country for this period probably have temporal validity.

By the 1600s, there is no question that Athabaskans were present throughout the entire Southwest, including the Sonora area of Mexico (Hammond 1931:41). Several researchers note that the Mogollon Highlands, particularly the rugged mountainous areas along the upper Gila River, were heavily occupied by Apaches (Hodge et al. 1945; Buskirk 1949; Schroeder 1952). In fact, by the 1700s, the Mogollon Highlands would seem to have been the focal area of the southern Apaches, as recordings of sightings and hostile encounters flood the historical documents. Hostilities between Apaches and other Indian groups generally seem to have begun by the early 1600s with much of the trouble occurring with the Piro Pueblos along the Rio Grande where, earlier, peaceful trading had taken place (Hammond and Rey 1928:286). Blame for this breakdown in relations with Pueblo groups is often placed upon the Spanish who interrupted the well-established partnerships, leaving the Apaches without means of obtaining sometimes necessary goods (Ivey 1992:222). These hostilities included enmity against the Spanish by at least the mid-1600s in the Mogollon area with encounters first noted at Acoma and Zuni pueblos just north of the highlands. Subsequent forays into the Mogollon Highlands by the Spanish, pursuing Apache raiders, produced sightings but only occasional confrontations with relatively few killed on either side. The tendency of the Apaches to split into small groups when pursued and their ability to easily negotiate the familiar steep canyons and slopes of the region probably prevented great loss of life for both parties. However, the Athabaskans of the Mogollon Highlands remained a thorn in the side of the Spanish well into the late 1800s (see Table 1.7). The last reported sighting of Apaches in the Mogollon Highlands comes in 1900 when a family was seen at the head of Mogollon Creek and tracked to the north end of the Black Range where at least one of them was killed (McFarland 1974:56).

In 1872, many Apaches of the region were confined by the U.S. government at Fort Tularosa in the Mogollon Highlands, on the Tularosa River at Aragón. Approximately 500 Apaches were kept under less than ideal conditions for approximately two years until even the stationed soldiers of Company H of the 15th Infantry complained in offical correspondence about the hardships of the poorly constructed and poorly staffed fort. In April 1874, the Apaches were moved to Ojo Caliente, Arizona, and Fort Tularosa was abandoned. Today, nothing remains of Fort Tularosa as it has been leveled and covered over by a modern structure.

While Apache groups dominated the Mogollon Highlands from possibly the 1400s to the late 1800s when Anglo settlements first appeared, they were not the only Athabaskan or Indian group utilizing the region. There is repeated mention in historical records, beginning in approximately the mid-1700s, of Zunis, Navajos, and Mexican Indians entering the region for specific purposes. In 1747, Zunis, along with the Spanish, skirmished with Apaches on the Gila River and were noted again in 1754 at the same place (Ferguson and Hart 1985:60). Sixty Tarahumara from Chihuahua and 140 Opata Indians from Sonora, Mexico, noted for their archery skills, joined with Spanish soldiers near Cliff in 1756 to track Apache renegades (Kessell 1971:146).

A Navajo presence in the Mogollon Highlands is more frequently noted. It is believed that after the Pueblo Revolt in 1680, Navajos moved south into Apache country. They are first recorded in 1754 in the vicinity of Laguna and Zuni, north of the highlands. Relations between Apaches and Navajos apparently vacillated between warm and cold for the next 150 years. The first enmity is mentioned in 1788, when Navajo guides were used by the Spanish on punitive expeditions against the Apaches at the headwaters of the Gila. This would assume that the Navajos had visited this country prior to 1788. Then, less than 20 years later, both Navajos and Apaches are occupying the Mogollon Mountains together. Seven years after that, in 1813, Navajos killed Apaches at Agua Caliente near the San Mateo Mountains and tracked Apaches into the Datil Mountains. Navajo employment as scouts or guides on military campaigns into the Mogollon Highlands was apparently common, being frequently mentioned between 1788 and 1857. The last documented occurrence was when the Navajo chief, Sandoval, joined the Bonneville expedition against Apaches on the upper Gila in 1857 (Schroeder 1963:7-15). However, Navajos maintained a continuous presence in the highlands until their forceful withdrawal to reservations in 1868 (Wozniak 1985:16). A favored stronghold of the Navajos in the 1860s (including chiefs Manuelito, Barboncito the younger, and Ganado Blanco) is said to have been the Escudilla Mountains bordering Arizona and New Mexico north of Alpine, Arizona (Schroeder 1963:15). Other commonly used areas for Navajos were the Datil, San Francisco, and Mogollon mountains.

The implications of other Athabaskans being in the Mogollon Highlands, at least as early as the mid-1700s, are important for interpreting the archaeological record in this region. Sites dated between the mid-1700s and the late 1860s thought to represent Apache occupations may

not be Apache, but instead Navajo or possibly Mexican Indian. Current analytical techniques cannot distinguish them and, at this point in time, we do not even know if there actually are observable or quantifiable differences.

Using the data from Table 1.7 and Figure 1.22a-f gives a visual presentation of where and approximately when Apaches, or Athabaskans, appeared in the Mogollon Highlands. The maps are broken down into 100-year periods and include areas surrounding the Highlands as a measure of comparison. The 1400s map (Fig. 1.22a) displays few sites in southwestern New Mexico; all are from radiocarbon-dated features obtained on this project within the Mogollon Highlands. Of interest is the presence of sparse, but widespread, sites or tribal references to specific places and dates for southern Arizona. How and when did Athabaskan groups migrate through either northern Arizona or western New Mexico, according to traditionally assumed movements from north to south and east to west, to produce a presence in southern Arizona at this time? Why aren't there more sites, therefore, in western New Mexico? Intuitively, this map does not appear to be correct, with what little we know was occurring in New Mexico. The dates could just as likely be the result of incorrect C-14 readings or generalities within tribal traditions. However, there is the possibility of these actually being very early sites. The current data are so limited that definitive statements are not appropriate at this time. One idea that we have entertained concerns the long-shot speculation of these being early Mexican Indian sites or very early Chiricahua Apache sites that may have derived from Mexican origins rather than northern Athabaskan. In reality, our knowledge of Athabaskan movement over the landscape of the Southwest is extremely meager and this simple 1400s map raises even further questions about Athabaskan settlement of the various regions.

The 1500s map (Fig. 1.22b) displays fewer sites but they appear where we would expect them to, if migration was coming from northern or northeastern New Mexico. Only a very few sites are located in extreme eastern Arizona. What happened to the sites in southern and central Arizona?A case for the 1400s sites being representative of old wood readings could certainly be made from this map, thereby rendering this area generally void of Athabaskan sites until later in the 1600s. There seems to be no historical event in the late 1400s or early 1500s that would have caused the Athabaskans to retreat so thoroughly from this area at this time. Then again, 1500s Athabaskan sites may be present but unrecognized or undatable.

The 1600s map (Fig. 1.22c) reveals that almost all areas of southwestern New Mexico and a broad area in Arizona had Athabaskan representation. This pattern is to be expected as populations increase and new regions are settled. In New Mexico, most sites of this period have been recorded near existing pueblos at Zuni, Acoma, and the Piro area. By the 1700s, Arizona site distribution remains fairly stable, while a great increase is noted for Athabaskan sites in the Mogollon Highlands and a decrease in sites located near the large Pueblo communities. In fact, the highlands are now the focal point of Athabaskan settlement in southwestern New Mexico. An historical event that likely contributed to such a concentration in this rugged terrain, removed from large Pueblo villages, was the growing hostility between Apaches and the Spanish in northern New Mexico, manifest in the disruption of trading relationships with the large pueblos by the Spanish. Punitive expeditions by the Spanish against the Athabaskans were not uncommon at this time and what better place to elude capture or slaughter?

Two noticeable modifications in the 1800s map (Fig. 1.22d) mark the difference between it and the earlier 1700s locations. First, the number of Athabaskan sites in the Mogollon Highlands increases more than threefold, making this area even more of an Athabaskan settlement focus than in the 1700s. This number should actually be higher because there are also numerous sites present just to the west in the White Mountains of Arizona, but no documents on these sites were available to us. With the addition of the Arizona sites, the heavy Apache occupation shown in Figure 1.22d would continue to the west, increasing the already large Apache population in the mountains of the two states. Other areas in Arizona seem to maintain a status quo from the 1700s.

The other change from the 1700s is the reappearance of Apache sites surrounding major Pueblo communities at Zuni and Acoma and a stronger presence in the Datil Mountains. It would seem that trade with or raiding of these settlements had again assumed priority staus (Lightfoot 1983:203). During this time, the U.S. government was more relentless in their pursuit of Apaches than earlier and by the late 1870s had forced them onto reservations in Arizona and the Mogollon Highlands. The Apaches may have seen this antagonism as cause to pursue harassment of Pueblo groups (who sometimes sided with the government against them). Details of this period in the Mogollon Highlands are poorly documented, and Brugge (1981:288) suggests it is because the area is well removed from major settlements and no Spanish missionary work was actually pursued here. A more thorough study of Mogollon Apache and Pueblo relations during the course of the 1800s is beyond the scope of this report, but would be informative regarding the pattern observed in the 1800s map.

By the 1900s, the Apaches are virtually gone from the Mogollon Highlands, sent to reservations in Arizona, eastern New Mexico, Oklahoma, and Florida. Some that eluded capture were reportedly present in the Sierra

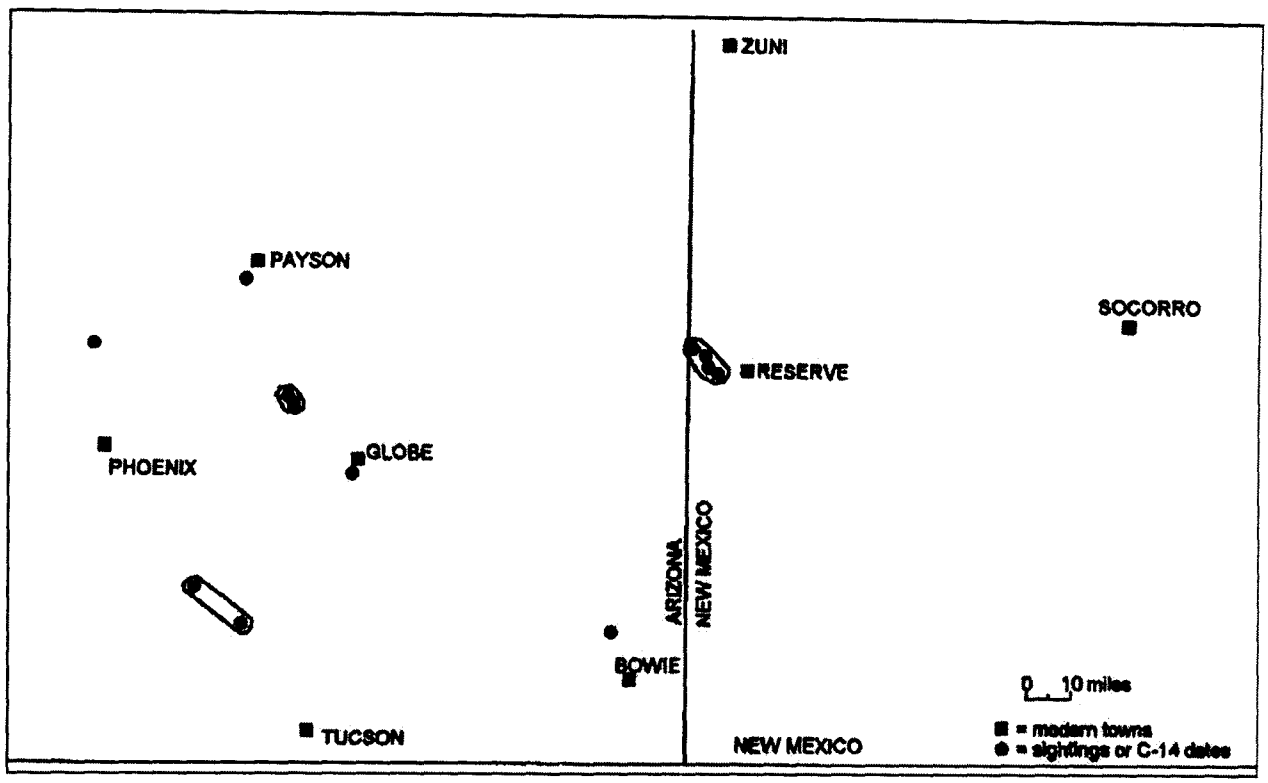

Figure 1.22a. Athabaskan presence, 1400s.

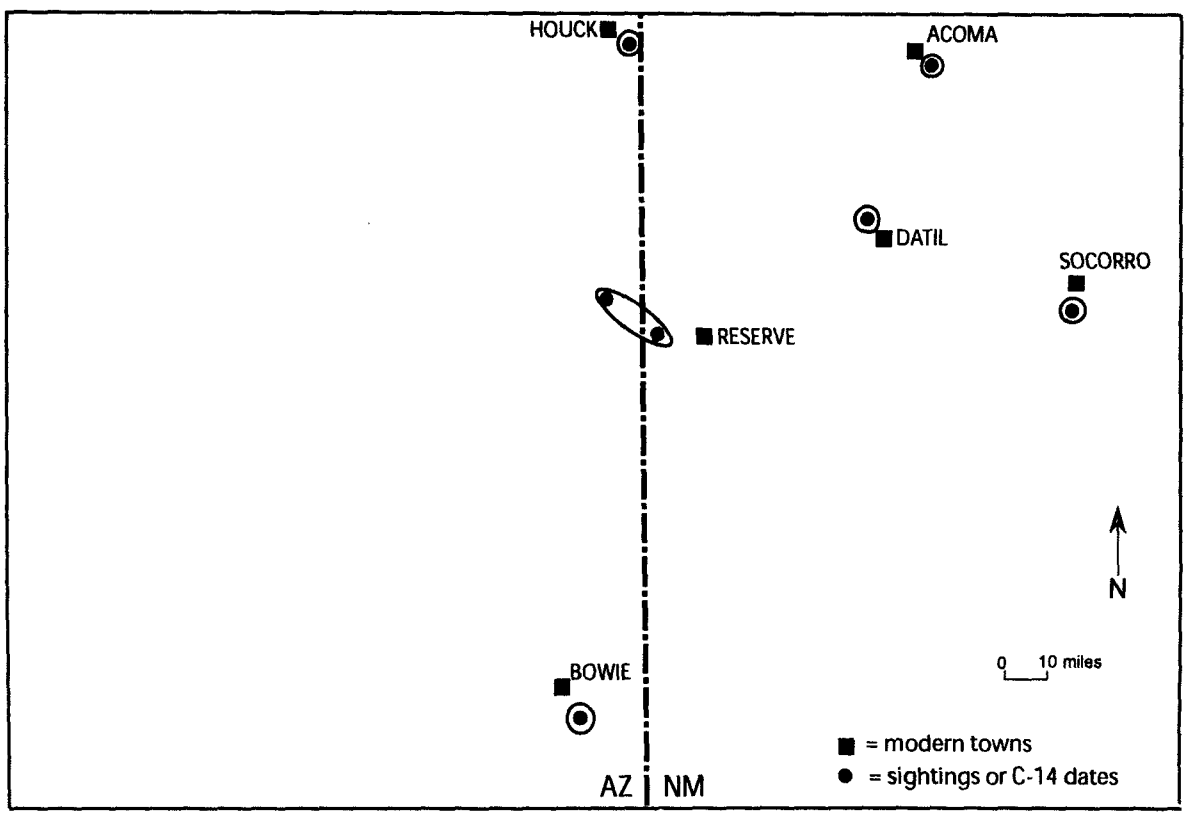

Figure 1.22b. Athabaskan presence, 1500s.

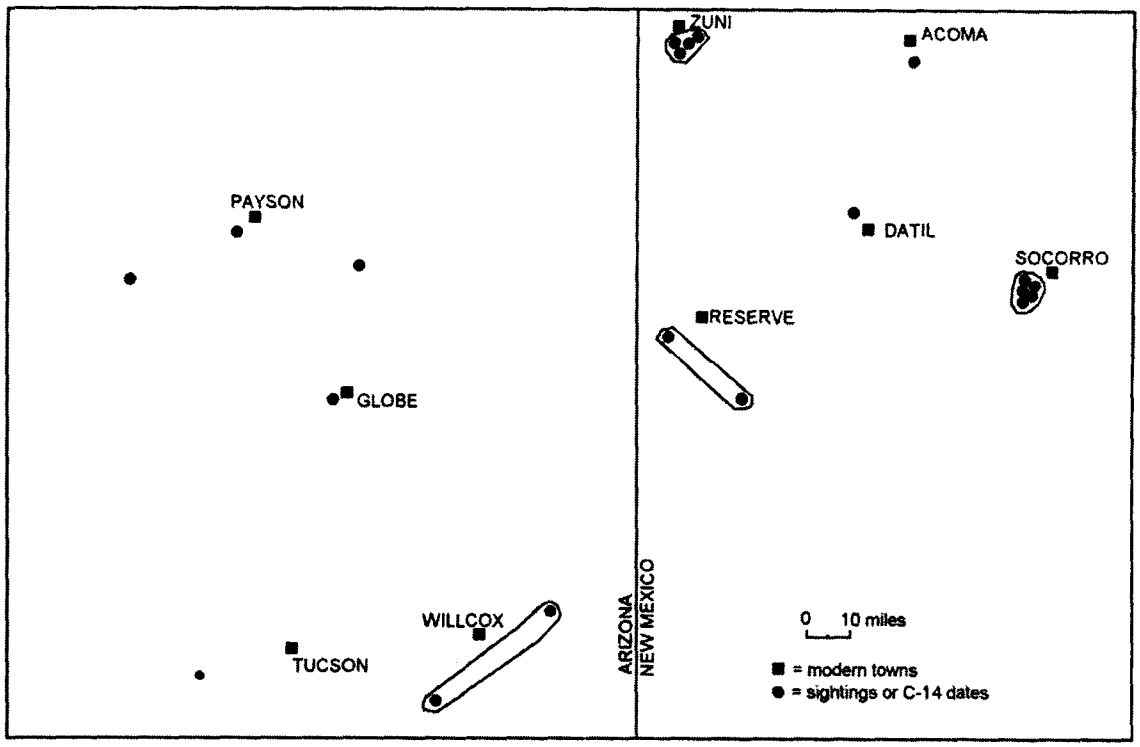

Figure 1.22c. Athabaskan presence, 1600s.

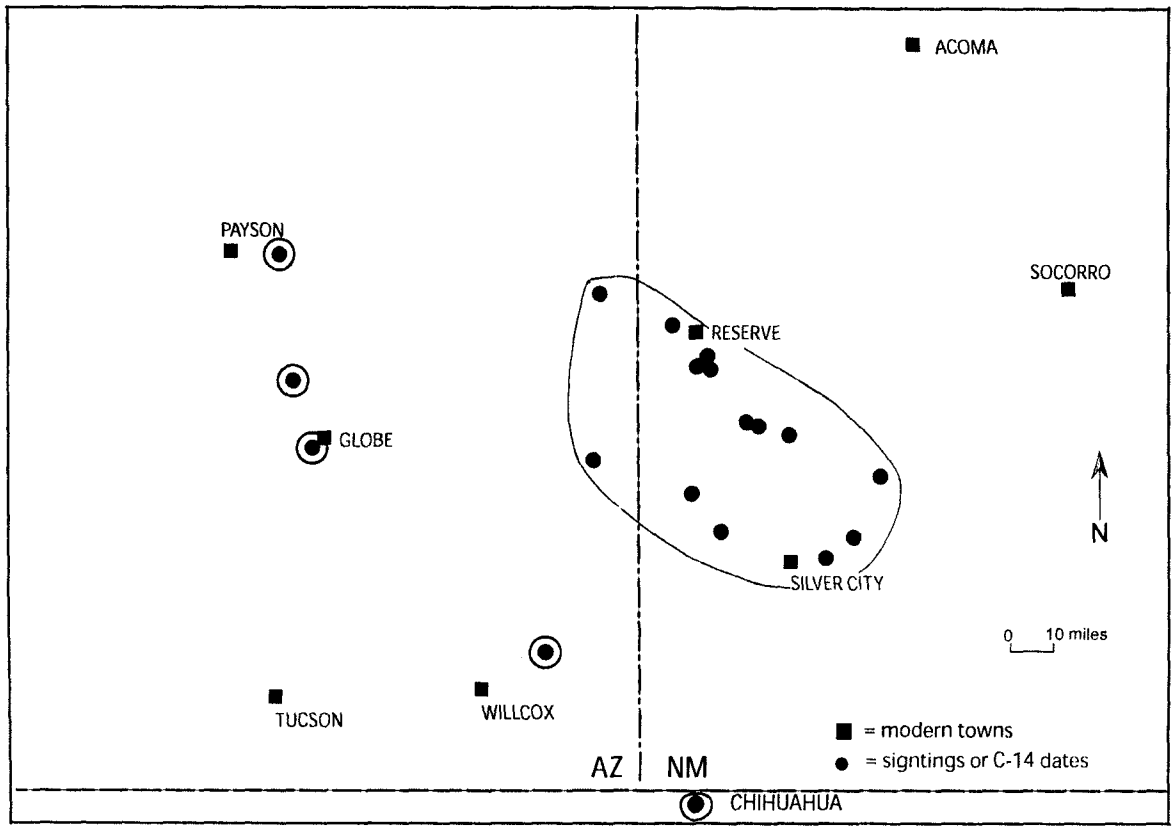

Figure 1.22d. Athabaskan presence, 1700s.

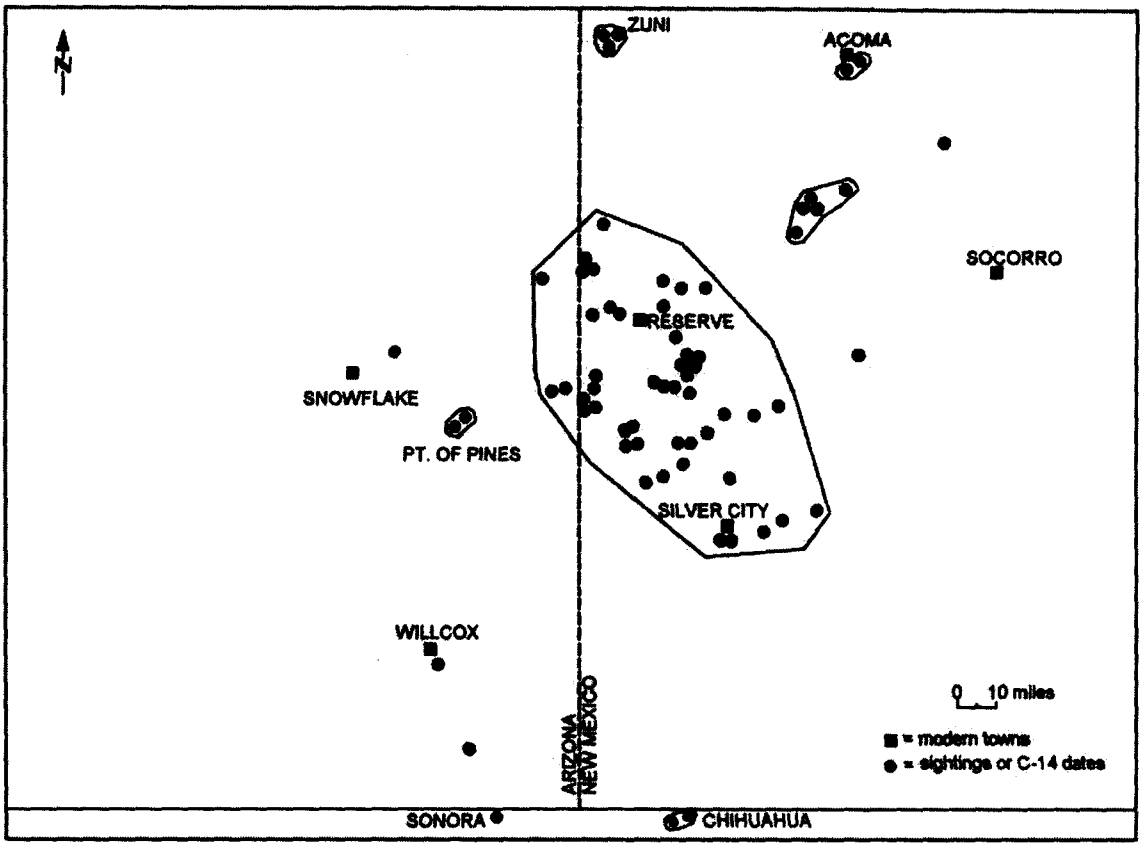

Figure 1.22e. Athabaskan presence, 1800s.

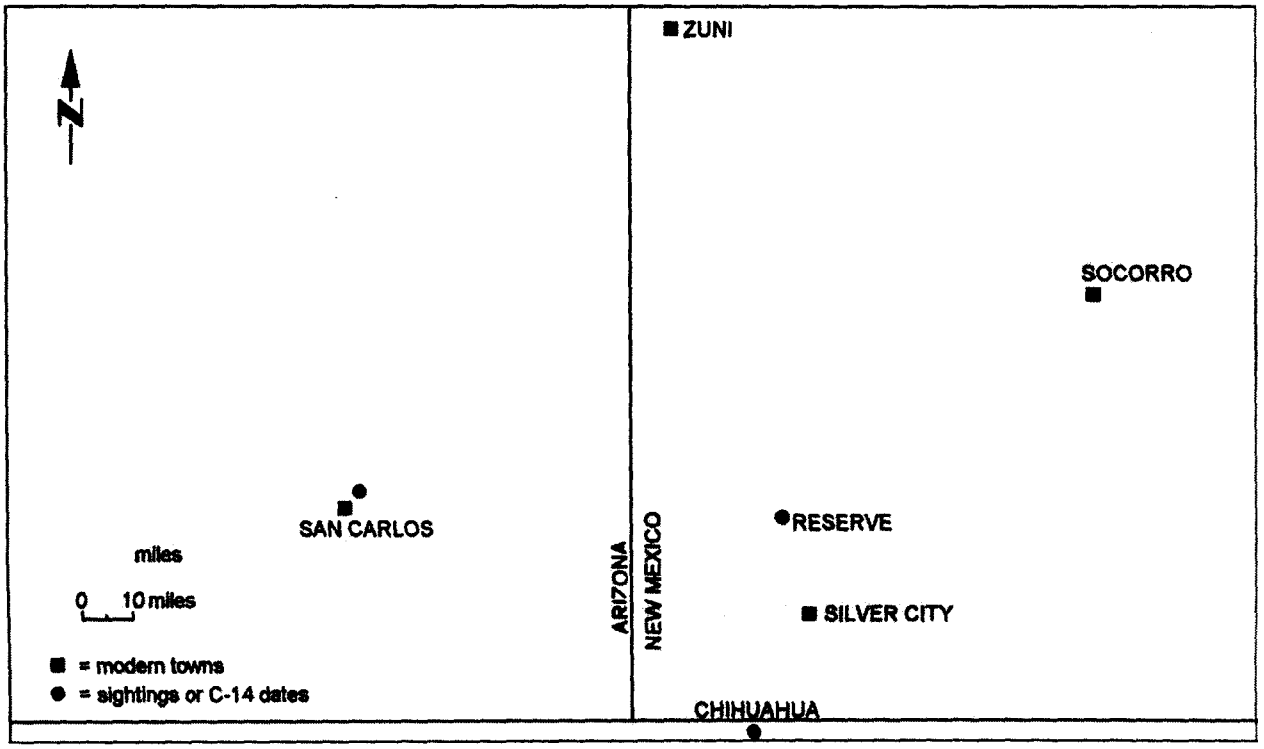

Figure 1.22f. Athabaskan presence, 1900s.

Madre Mountains of Mexico as late as the 1930s, occasionally raiding small ranches and settlements for supplies and sometimes kidnaping children for labor (Opler 1987:28).

Social Organization

Apaches occupying west-central New Mexico and eastern Arizona are generally termed Western Apache, with the exception of the Chiricahua and their possible replacements, the Warm Springs Apache (Goodwin 1935:55). The area between the Colorado River in Arizona and the Rio Grande and for 1,000 miles into Mexico is likewise called Apacheria (Thrapp 1967:x). The Apache tended to organize structurally by bands, which for them is an aggregation of extended families, spatially set apart from other bands into distinct territories (Kaut 1974:60). Apaches were relatively strongly attached to their individual bands, but less so to the concept of a larger Apache tribe (Opler 1983:369). Bands were further divided into local groups. Entire bands rarely assembled together at one place (Basehart 1959:8). Group sizes were fluid, ranging from fewer than 100 to approximately 300 (Basehart 1959:8; Lekson 1992b:5). Determining which groups occupied the Mogollon Highlands has proven to be difficult at best, partially because only after 1722 did the Spanish distinguish any of the Apache groups from other groups (Opler 1983:388). Even after that, overlapping territories were apparently not as uncommon as Kaut (1974:60) believes.

Between 1850 and 1875, Goodwin (1942) mapped five Western Apache groups: Northern Tonto, Southern Tonto, Cibeque, White Mountain, and San Carlos. The Northern and Southern Tonto occupied the area from Globe to Flagstaff, Arizona, and south to the San Pedro Valley. These groups had little bearing on events in the Mogollon Highlands and are minimally discussed further. Today, groups have been consolidated into three bands: Camp Verde (formerly Northern Tonto), Fort Apache (Cibeque and White Mountain Apaches, and some Chiricahua), and San Carlos (San Carlos, some White Mountain and Southern Tonto). In New Mexico, Schroeder (1974) names four groups including the Salineros (near Zuni Salt Lake), Colorados (near El Morro), the Gilenos (Datil and Gallo Mountains), and the Chilenos (San Francisco Mountains). More commonly used terms for New Mexican Apaches are the Gilas, Mogollones, Coyoteros (also in Arizona), the Mimbreños, and the Warm Springs Apache. Confusion abounds, but we have attempted to sort out those groups that may have left the archaeological remains found in the highlands today.

The Gila Apache are one of the first groups identified by name by the Spanish in 1630 (Hodge et al. 1945). Matson and Schroeder (1957:352) comment that they were one of the most warlike groups of Apache, no doubt because Spanish expeditions into the Mogollon area seemed to encounter them most often. They are consistently noted between 1630 and 1796 as being located on the headwaters of the Gila River (Hodge et al. 1945; Matson and Schroeder 1957). The group is variously said to have been forerunners of the Mogollones Apache, in league with the Mimbreños Apache, and apparently confused with the Coyoteros, Mogollones, Tontos, and Mimbreños Apache who were frequently called Gilas. Opler (1983:389) states that even Pinaleños, Chiricahua, and Yavapai were sometimes misidentified as Gila Apache. Mention of Gila groups attacking white settlers in Socorro and Valencia counties (Schroeder 1963:12) may not have actually been Gila Apaches. Thus, the headwaters of the Gila and possibly Socorro and Valencia counties to the north and east, are the only known territory of the group. The Mogollon Highlands, particularly in the vicinity of Reserve, lie just to the northwest of this area and almost certainly would have seen Gila Apache incursions.

All that is mentioned of the Mogollones Apache in the literature is that they numbered 900-1,000 in 1857 and were closely associated with the Mimbreños at that time (Ogle 1970:8). They are said to have generally occupied the Mogollon regions of New Mexico and Arizona. In 1874, the Mogollones were identified as one of the Apache groups from Ft. Tularosa who fled to Arizona. Whether the Mogollones derived from the Gila Apache is unverified. The scope of their territory is so broad that they also could have easily occupied many of the archaeological sites found in the Mogollon Highlands.

The Mimbreño Apache have occasionally been called the Copper Mine Apache, or sometimes considered part of the Gila Apache. In 1850, there were said to have been 200 warriors, and 400-750 by 1870 (Ogle 1970:8). In 1838, Chief Mangas Colorados is credited with eliminating Mexicans from southwestern New Mexico (Ogle 1970:30). The Mimbreños are generally located in the Mimbres Mountains area south of the Mogollon Highlands. However, there is mention of them also occupying the area between the Rio Grande and the San Francisco River and sometimes as far west as the White Mountains and as far south as Mexico (Ogle 1970:7). Another description of their territory (John 1989:51-52) bounds them on the west by the Gila Apache, north and east by the province of New Mexico, and south by the frontier of Nueva Vizcaya (deep into Mexico). Schroeder (1962:58) also mentions that they wintered in northwest Chihuahua between Casas Grandes and the extreme southwest corner of New

Mexico. While it seems their general territory may have extended west only as far as the San Francisco River, that boundary today is in the middle of the Mogollon Highlands.

The Coyoteros are thought to have been more agricultural than other Apache groups and yet Colyer (1872:4) states that they were one of the most powerful Apache groups. Their name means "wolfman"; however, little else is known about them except that they were comprised of two groups, the Pinal and the White Mountain Coyoteros, occupying western New Mexico and eastern Arizona as far west as the San Carlos drainage (Ogle 1970:8; Opler 1983:388). Colyer (1872:4) also places them on the north side of the middle Gila and into the Mogollon Mountains and southeast to the Pima villages of Arizona. In 1861, they were recorded (Schroeder 1963:13,15) in the White Mountains, and in 1866 in the Escudilla Mountains on the New Mexico-Arizona border (a favorite refuge). Apaches residing in the Tularosa Valley at this time also seemed to be Coyoteros. Thus, the Coyoteros also were known to have occupied many portions of the Mogollon Highlands.

The White Mountain Apache are extant today and were known formerly as being one of the friendlier Apache groups, frequently trading with Western Pueblos. The White Mountain and Chiricahua Apache relationship was so close that the Tontos used the same name for both. The White Mountain group used the more southern Chiricahua lands for ritual preparation sites on their rounds into Mexico. But Gladwin (1942) notes that they maintained separate territories and language. While today they are found on the reservation in the White Mountains of Arizona, in 1931 an old woman recounted going from the White River to the Blue Range on the border of New Mexico to gather piñon in the 1840-1850s. Another Apache tells of heading into the Mogollon Mountains in the mid-1800s to fight with the Navajos and take their livestock (Basso 1971:31, 43). By 1858, the White Mountain population was about 2,500 people with 600 warriors (Colyer 1872:5). By the late 1870s, the population stood at 1,400-1,500 (Pool 1985:34). At this time, the amicable relations with the Chiricahuas were halted when the White Mountain Apache were enlisted as scouts against the Chiricahua (Goodwin 1942).

Most researchers believe the Warm Springs Apache may have formerly been the Gila or Mimbres Apache (Lekson 1992b:1). They called themselves "Tchinene" or red-paint people. Opler (1983) thinks they were actually the eastern group of the Chiricahua; but some modern Warm Springs Apaches do not consider themselves Chiricahua, although there are close ties between them. Another source says Geronimo was their medicine man and Nana their captain leading them into constant conflict with the San Carlos and Chiricahua Apache. But, if so, how could they have been Chiricahua as stated above?In 1850, they are said to have ranged over all of southwest New Mexico, south of Glenwood, east to the Rio Grande, excluding what is now Hidalgo County. In 1850, there were about 900 in the Mimbres-Black Range area and 500 in the Mogollon Mountains (Basehart 1959:42). By 1869, there were about 1,600 Warm Springs Apaches located between the Mogollon, Mimbres, and Black Range mountains (Opler 1983). Thomas (1959:62) states that in the late 1870s, there were just under 1,000 residing near the Warm Springs Agency in the Black Range. Some were also living near Silver City in 1877 (Basso 1971:103). Not only was their territory vast, but Lekson (1988b:21) gives an estimate of that range at 18,000 sq miles. While the territory may have actually been just east and south of the Mogollon Highlands, forays into the area would certainly have been possible.

The last group of Apaches discussed are the Chiricahua. Kaut (1974:60) and Opler (1983:389) do not consider them part of the Western Apache group for reasons that are not clear, although Gladwin (1942) did note that their language was different. Also, Forbes (1966:338) states that the Western Apache are more similar to Navajos in their characteristics than to the Chiricahua, although the two intermarried (Murdock 1967). Our 1400s map (Fig. 1.22a) of Athabaskan locations suggests that the Chiracahua noted in southern and south-central Arizona at this time may not have been part of the overall Western Apache movement into the area, but perhaps an intrusion from Mexico. The Chiricahua were divided into three bands: eastern (southern New Mexico), southern, and central. There is confusion in the literature as to whether the Eastern Chiricahua were the red-paint people mentioned above (Opler 1983:401) or if the Warm Springs Apache were similarly identified (Lekson 1992b:1). Their principal territory was southeastern Arizona but they traveled throughout much of New Mexico, Arizona, and northern Mexico (Ogle 1970:10-11). By 1850, the Chiricahua population was estimated at over 3,000 people (Opler 1983:411). Their leader in 1861 was Cochise (Thrapp 1967:16). In 1788, the Chiricahua are mentioned as engaging in battle with the Ugarte y Loyola party in southern New Mexico (Hammond 1931:43). Because of their previously mentioned contacts with the White Mountain and possibly the Warm Springs Apache, it is likely that there was some Chiricahua Apache presence in the Mogollon Highlands.

Upon review, almost all Apache bands had occasion at some point to utilize the Mogollon Highlands. Current archaeological methodology is not able to distinguish the remains of the various groups. It can barely identify

Athabaskan groups as such, and then only if radiocarbon samples or structural remains are present. However, the 1700s and 1800s saw almost all of the Apache groups present in the Mogollon Highlands.

Athabaskan Material Culture

Structural Features

Little is known of early Athabaskan structural features before the 1700s. Archaeological evidence from OAS sites in the Mogollon Highlands suggests housing was primarily in temporary brush structures. Shallow, roughly circular depressions were found during excavations and dated from the late 1400s to the 1600s. The mean diameter of the remains was 2. 3 m with a floor area of 5. 69 sq m and a depression of 34 cm. No interior features were found. One had a possible elongated entry facing west. Only one Athabaskan utility sherd was found outside of a structural depression, and while lithic artifacts were present, they were not distinguishable from those of earlier Mogollon occupations at the sites.

The earliest regional historical documentation of Athabaskan dwellings comes from Saenz's journal which states that Athabaskans built a few half-huts of no more than branches wherever they stop (Kessell 1971:150). Eye-witness accounts in the mid-to-late 1800s note that shelter was provided by dome-shaped, brush-covered dwellings (Goodwin 1935:64). In Arizona, several of these have been found intact and the word "wickiup" is used to describe these later structures. Ogle (1970:19) describes them as usually 3. 4 to 3. 6 m in diameter and constructed by first making a framework of slender poles placed in a circle. The tops are then bent over and tied and the structure covered with branches or animal hides laid over the framework. The interior was usually dug out for 30 to 45 cm with excess dirt frequently piled around the outside. Donaldson and Welch (1991:99) note that floors were commonly not prepared, although hearths, when present, were centrally located. Construction of the dwelling was normally completed by women (Opler 1983:371). Hrdli ka (1905:482) provides additional information by stating that no forked supports were used and that dwellings were smaller in winter to keep in the warmth. Apparently there was no strict doorway orientation. He also notes that structures were frequently built in groups of three to six and that upon the death of the occupant, the dwelling was burned (Hrdli ka 1905:483-484). Forbes (1966:338) adds that tepees were never used by the Western Apache.

Donaldson and Welch (1991) have classified two types of brush structures—domed and conical. The domed units were for short-term use and averaged slightly over 3 m in diameter. Conical structures were larger and could have been used for several years.

Sometimes a single ring of rocks was placed as a foundation (Whittlesey 1998:172); however, this practice apparently ceased in the late 1870s (Donaldson and Welch 1991:96). Perry (1991:150) believes that domed structures were the earlier of the two. The wickiups of later times seem to have become popular after Apaches were removed to reservations (Donaldson and Welch 1991:94).

Caves and rock shelters were also used by the Apache as dwellings. Goodwin, in the 1940s, stated that the Western Apache did not live in caves but used them primarily as storage areas (Whittlesey 1998:197). However, several caves presumably used by the Apache have produced evidence of sleeping and food processing activities. Pine Flat Cave, at Point of Pines, Arizona, which dates to post-1870, yielded hearths, grass and bark-lined pits, burden baskets, and pitch-covered water bottles (Gifford 1980). On their extensive examination of caves in the upper Gila area in the late 1920s, the Cosgroves recorded numerous cave sites that they attributed to a late Pueblo occupation of the area. Many contained well-preserved bows, arrows, cotton cloth, yucca cordage, baskets, reed cigarettes, painted pahos, wood tablitas, sandals, and the frequent lack of Pueblo pottery (Cosgrove 1947). Hough (1907) on his northern Mogollon survey, notes numerous caves in the Luna, Blue, and Alma areas with the same array of intact items, but he does not assign a cultural affiliation to them. We strongly believe these are Apache shelters, shrines, and storage areas. In many of the caves were found grass-lined pits that the Cosgroves believe were used for sleeping quarters. Several of the caves are found on steep cliff faces with difficult access. The predilection for Apache sites to be located in inaccessible terrain has often been noted by early explorers (Matson and Schroeder 1957:339).

Sometimes, crudely stacked, dry-laid stones that form a circle or U-shape are recorded as Apache (Donaldson and Welch 1991:99). Their use may have been for shelter from wind or as hunting blinds. Artifacts are rarely found in association.

Storage cists are a common facility used by Athabaskans. They may be found in caves or in the open. Often the pits are lined with beargrass or juniper bark (Buskirk 1986:73-75). We wonder if some of these grass-lined pits found in caves may rather have been sleeping units as described by the Cosgroves.

Not infrequently, Apaches will occupy a former pithouse or pueblo site, often constructing stone-based structures within existing wall perimeters (Asch 1960; Vivian 1970; Wilson and Warren 1995). It is well-known that Athabaskans will also utilize stone and sherd mate-

rial left on a site by former residents (Hrdli ka 1905).

Roasting pits for processing various subsistence items, such as corn, piñon, acorns, and mescal, are also common Apache features. Mescal pits are usually found in the southern part of Apacheria in desertic environments. Welch (1994:92) records over 200 roasting pits in the Grasshopper area of east-central Arizona. Several Athabaskan-related pits have also been found on this project. Contents include cheno-ams, composites, Mormon tea, prickly pear, and maize.

Artifacts

Unlike their Mogollon predecessors, the Apache did not leave behind a rich and diverse cultural record. Many sites retain no material goods, making assessment of them as Athabaskan difficult.

The Western Apache did make limited pottery; however, they never excelled at the craft. Baugh and Eddy (1987:793) believe Apaches relied mostly on Pueblo sources for their pottery. They say that only five confirmed Apache (Chiricahua) pots were in collections as of 1985. Early Athabaskan pottery consists of moderately large ollas made by a coiling and scraping technique and are thin-walled, fire-clouded, and have minor decorative treatment. Eventually, surface treatment involved striations, scoring, incising, fingernail indenting, or wiping over most of the vessel or just the neck (Brugge 1982:279). Mica was commonly used as temper; however, Whittlesey (1998:212), using Goodwin's 1942 notes, says that Apache informants formerly used ground prehistoric sherds or plant material as temper. Through time, vessels get smaller and possess thicker walls (Brugge 1982:283). Pottery was used by the Apache for boiling meat, brewing corn beer, to store corn, seeds, and tobacco, and to melt pitch, among other uses (Ferg and Kessell 1987:66). The pointed-bottomed ollas were set into the ground and seldom moved once placed, according to early informants (Whittlesey 1998:175).

Brugge (1982:285) says that some Apache groups were producing pottery by at least 1700. Baugh and Eddy (1987:793) believe that none was earlier than 1625-1725. At recent OAS excavations in the Datil Mountains, Athabaskan Thin Utility Ware was present at LA 104381, radiocarbon-dated to approximately 1610, and at LA 39998 at 1590 (Wilson 1998:97). OAS investigations on this project yielded a single Athabaskan red-slipped sherd associated with a nearby brush structure that had a C-14 date of ca. 1640. These dates are not unreasonable given the occupation of the Mogollon Highlands by Athabaskan groups by at least the 1500s. Numerous sherds of Apache Plain have also been recovered from Apache sites in central Arizona (Huckell 1978; Tagg 1985; Ferg 1995).

Today, most Apache groups no longer produce pottery. The San Carlos Apache ceased production around 1880, along with most other groups. But prior to this, the San Carlos used boiled globe mallow in their ceramic vessels to make them stronger and less porous (Hrdli ka 1905:487). Now, the proliferation of Euroamerican ceramics has contributed to the decline in labor-intensive pottery making by the Apaches (Ferg 1992:16).

Rather than pottery, the Apache appear to have preferred using baskets as containers. Their skill was unequaled at basket weaving. Most baskets are shaped like large ollas. Burden baskets are a specific type of basket carried on the back and held in place by a tump line across the forehead. Pitched baskets, usually with handles, are used for carrying water or food (Ferg and Kessel 1987:69). The Western Apache did not use the travois (Forbes 1966:338). Numerous baskets have been found in caves with food, such as corn and acorns, still in them.

In the southern part of Apache territory, saguaro cactus, as well as oak boles, the base of agave stalks, gourds, and cushaw squash, were used as containers or cups for holding water (Ferg and Kessel 1987:69).

Another type of container used by the Apache and found in several caves in the Sierra Madres in Chihuahua, Mexico, was a calfskin sack made by skinning a calf over the head. The ends of the feet were then tied and the genital area patched with cloth. These were found in 1927, full of acorns and hair still remaining on the sack (Opler 1987:32). It is likely that young deer would have served the same purpose prior to the availability of cattle.

Lithic artifacts made by Athabaskans are seldom diagnostic and cannot be visually distinguished from Archaic or other prehistoric groups. Ferg (1992:12) believes Athabaskans used a generalized flake-core technology. He suggests they manufactured a high percentage of multiple platform cores and few bifacial reduction cores. One specialized Athabaskan tool was a mescal knife used to trim leaves off of agave heads. This is a tabular stone flaked along one side to produce a cutting edge (Ferg and Kessel 1987:55,59).

Projectile points were frequently retrieved by Apaches from prehistoric sites and often reworked. Basso (1971:231) states that an informant remembers old men going to prehistoric ruins and filling sacks with pieces of white flint. The informant says he made arrows out of cane and used points of white flint in the mid-1800s (Basso 1971:73,75). This preference for white chert, and obsidian, is also noted by Ferg (1992:12). Apache projectile points are generally considered to be crudely made with minimal symmetry (Ferg and Kessel 1987:50). Whittlesey (1998:177) describes them as typically small and triangular with side notches, although she admits to a great variety in shape. For example, Wills

(1988a:19) sees a remarkable similarity between Chiricahua points of the Archaic period and Western Apache points from the White Mountain Reservation, both with concave bases, broad ears, and crude side notches. Attempts to define an "Apache" projectile point from OAS sites in the project area were unsuccessful because of frequent mixing of cultural components on a site.

Informants told Basso (1971:231) that four different types of points were used by the Apache: stone, steel, pointed wooden foreshafts, and a four-crosspiece rig for hunting quail. When hunting deer, arrow tips were poisoned so that a deer would die from just being scratched. The poison was made from the spleen of a deer, nettles, and an unidentified plant. Poison projectile points were also used in warfare.

Ground stone was both scavenged and produced by the Apache. The preferred metate type was the slab. In some cases, scavenged trough metates have been found on Apache sites with the sides ground down. Manos are both flat and rounded. Mortars were also employed to grind mesquite beans, walnuts, and acorns (Ferg and Kessel 1987:59-61). When death of an individual occurred, any metate presumably used by that person was broken (Rogge et al. 1994).

Apaches also collected turquoise and ornaments from prehistoric sites (Whittlesey 1998:212). Crystals were gathered and strung on necklaces as medicine charms (Ferg and Kessel 1987:127). Another nonessential item, a doll made of grass, was found on a 1756 Spanish expedition (Kessell 1971:150).

Apache clothing was almost exclusively made from animal skins; they had no cotton or wool (Goodwin 1935:64). Sandals have been recovered from Athabaskan caves (Hough 1907).

From the cave sites discovered by Hough (1907) and Cosgrove (1947), we get an idea of what may have constituted Apachean ceremonial or leisure items. These include carved wooden staffs, reed cigarettes, beads, flutes, pahos, torches, dice, and painted tablitas.

Trade with Western Pueblos and sometimes with the Spanish seemed to have sustained a large part of the Apache subsistence economy. Zuni, Hopi, and the Piro pueblos are frequently mentioned as trading partners (Hammond and Rey 1928:286; Goodwin 1937:404; Danson 1957:112). Items sought by the Apache were dark blankets, buffalo hides and robes, cornmeal, cloth, and abalone shell. Goods they gave in trade included salt, game, hides, baskets, and "older turkeys" (Hammond and Rey 1966:231; Kessell 1971:142; Ferg and Kessel 1987:86).

Burials

Little information is available on burial practices of the Western Apache. All of the data presented here are from Hrdli ka (1905:492-493) and Opler (1983:377). Apaches never buried their people near dwelling areas and sometimes placed remains as far as 6-8 km away. They preferred natural rock shelters or crevices that could be covered, earth at the base of hills, and nooks in small canyons. Sometimes, remains were placed on the ground and covered with wood and brush and topped with rock up to 1. 2 m high. No coffins were ever used. Tree burial was practiced among the White Mountain Apache but not among the San Carlos, and cremation was not employed by any Apache group.

Mention is made of 80 burials found in two canyons not far from an Apache village. It seems that men, women, and children were seldom buried close to each other, but are usually in the same general vicinity. Sometimes, personal goods were buried with them and occasionally broken.

Subsistence and Seasonal Rounds

The Apache subsistence strategy of participating in seasonal rounds covering vast territories in pursuit of food resources is well documented (Goodwin 1935; Griffin et al. 1971; Aschmann 1974; Lekson 1992b). This section attempts to define Apachean movement as it pertains to specific food sources and to particular areas of the Southwest.

If the Warm Springs Apache, numbered at 1,600, can be used as a model for the extent of territory covered by single Apache groups annually (Lekson 1988b:20), then their range of 18,000 sq miles can be projected for other Apache groups of similar size. In southwestern New Mexico, Apaches apparently moved freely between several environmental zones within widely diverse spatial and elevational parameters, including the desert and riverine areas of southern Arizona and New Mexico, the foothills and mountains of northern Mexico, and the mountains of the Mogollon Highlands and Mogollon Rim.

From where did Southwestern Apache groups begin their seasonal rounds? Most agree it was a north-south movement and suggest that the Mogollon Highlands were the homeland with travel to the south determined by the need for reliable, storable food resources sufficient to maintain populations over the winter (Goodwin 1935; Kaut 1974:60; Tuggle et al. 1984:109; Lekson 1992b:22-23,132). Several researchers note that

Apachean mobility was more pronounced prior to 1870, when the U. S. government severely restricted Apache movement (Griffin et al. 1971:69; Lekson 1992b:23).

Thus, movement is considered to originate from the north and head south every winter, primarily to northwest Chihuahua in the Sierra Madres and below the Gila and Salt rivers of eastern Arizona (Ball 1970:19; Griffin et al. 1971:69; Pool 1985:69). While groups generally returned to the same resource area, slightly different locations were used each year to allow resources to be replenished (Pool 1985:69). Also, within areas, groups apparently moved camp approximately every 15 days (Buskirk 1949:288). Sometimes, several groups would winter together in a favorite spot (Kaut 1974:60). Several researchers believe that Mogollon upland occupation occurred not only in summer but spring and fall as well (Griffin et al. 1971:70; Kaut 1974:60). Goodwin's notes say that the White Mountain Apache spent spring and summer in the lower Gila Valley and late fall on the Mogollon Rim, stopping in September on their return from the south to harvest their crops (Aschmann 1974:255). Winters in the uplands are assumed from this account. Also, Murdock (1967:57) notes that some Western Apache wintered on the White River, which is in the mountain area near Fort Apache. These last two references are the reverse of what other scholars have concluded, that winters were spent in the south and summers in the northern mountains. Overwintering in the south would be the more logical scenario, but not necessarily the most correct.

The Apache subsistence strategy was one of hunting and gathering, supplemented through time by trading with the Western Pueblos, raiding of the pueblos and the Spanish, and by the practice of agriculture. But Buskirk (1986:12) cautions this pattern may have varied considerably depending on the political climate or environmental conditions. The widely dispersed biotic zones in which Apache food sources were found seems to have been the driving force behind the broad annual movements. An example would be the two most critical foods for Apaches, mescal and acorns, found at very different elevations in very different climates.

In addition to mescal and acorns, other plant food items, listed in order of importance by Buskirk (1949:287-348), are:

Sunflower seeds	Beargrass fruit and seeds
Piñon nuts	Grama and dropseed grass
Juniper berries	Devil's Claw seeds
Sotol parts	Wild grapes, cherries, plums
Walnuts	Strawberries, manzanita
Mesquite beans	Pigweed, lambsquarter, beeplant
Saguaro fruit	Inner bark of pine trees
Saguaro seeds	Maize and mushrooms
Cacti fruit	Wild onions, tomatoes,
Cacti seeds	hyacinth bulbs, tule bulbs
Spanish bayonet	

In 1785, Cordero notes that mescal was a principal delicacy of the Apache (Kessell 1971:149). It is made from the agave plant and found in the southern reaches of Apache territory, particularly in the Sierra Madres of Mexico and in the desert lowlands of Arizona. It can be harvested in any season, but is perhaps best in the early spring (Buskirk 1949:298). Mescal was valuable to the Apache for its year-round availability and because it could be used variously as a type of gruel mixed with ground berries, as a flour for bread, also as an intoxicant, and shredded for thread. Another advantage was that it could be stored for up to six months (Basehart 1973:157). Processing mescal involved cutting the agave crowns from the plant, placing them in a large roasting pit with hot rocks upon which the crowns are spread, then covering them with layers of grass and earth, and roasting them for at least 24 hours. The cooked crowns could then be dried in slabs to be reconstituted later (Windmiller 1972:20). The processing often took the efforts of several people.

Acorns were a major winter staple for the Apache and are found in piñon-juniper zones, sometimes in the Mogollon Highlands where there are scattered stands, but mostly in the higher elevations in the southern areas (Lekson 1992b:82). They are available in late July and August. The White Mountain Apache climb up the trees and shake them down onto the ground, then gather them in baskets to return to their homes (Basso 1971:96). Because of having to move from stand to stand, and the limited window of opportunity for gathering, communal groups were frequently used for collecting of the acorns, sometimes taking up to a month (Buskirk 1949:283). To process, the nuts are shelled and ground to produce a coarse meal that can then be mixed with berries, meat, or other foods (Basso 1971:304). Leaching the nuts of tannic acid is not mentioned for the Western Apache as it is for eastern New Mexico groups.

Other plant foods used by the Apache include sunflower and grass seeds gathered by baskets in late summer. In 1756, Cordero states that the Apache made a type of pinol of grass seeds, which they reaped with great care (Kessell 1971:159). Both sunflower and grass seeds were stored and used as important winter food (Pool 1985:49).

Piñon nuts and juniper berries are found in similar locations and are gathered in October and November. Both can also be stored for use in winter. However, piñon availability can vary widely from region to region and on an annual basis. Reagan (1928:146-147) notes that the White Mountain Apache women collected the piñon cones and burned them, also roasting the nuts at the same

time. Juniper berries are more reliable and processing involves drying the berries, then boiling them in water until soft. The mashed berries would then be ground into a pulp, molded into balls, and stored for later use (Basso 1971:96).

Sotol is found in the southern areas of Apache territory and is gathered in late spring or early summer. Walnuts are found at higher elevations in scattered stands along major streams (Lekson 1992b:21) and are gathered in late summer or early fall.

Mesquite beans are widely present, mostly in the southern areas, and are collected in the summer. Their availability, however, can vary greatly from year to year; thus, it is not always a reliable food source (Lekson 1992b:19). The beans are used to make a meal or cake (Ball 1970:19).

Saguaro and prickly pear cactus are found primarily in southeastern Arizona. The saguaro fruit is gathered in July and can be stored as a winter staple (Pool 1985:49). The prickly pear fruit (tuna) is usually gathered in September, sometimes earlier, and is pounded into dry cakes, which are then left to harden (Basehart 1960:39; Basso 1971:256). Spanish bayonet (yucca) is also a southern plant of New Mexico and Arizona; however,it can also be found, to some degree, in the lower elevations of the northern Apache area. It is available in early September and can be stored for winter use.

Other plant foods on Buskirk's (1949) list are minor resources and used on an as needed basis or as encountered. One interesting item used when food supplies are very low is the inner bark of pine trees. The Apaches would peel back the outside bark of ponderosa in a strip approximately 3-4 ft long and 1 ft wide. They would then remove the white, pulpy layer, which is usually about - inch thick. This would be placed in water and kneaded until the turpentine in the sap was worked out. It was then roasted slightly and eaten. It is said to taste almost like crackers (McFarland 1974:25).

Hunting large game was best pursued in the foothills and mountains of the northern highlands. Goodwin (1935) indicates that late spring was the preferred time of procurement when planting of crops was over and gathering of wild foods had not yet begun. However, prior to the growing of crops, the procurement period for wild plants may have been somewhat different. Deer was the most sought after meat source (Buskirk 1949:280). In 1885, one witness saw Navajo scouts between the Blue River and the WS Ranch near Alma kill 84 deer of all sizes in one day, carefully preserving the hides and intestines. The scouts said they did it to prevent the Apaches from getting them (French 1990:88). Earlier, in 1756, Saenz reports that he saw the Apache also eating pronghorn, rabbit, and quail (Kessell 1971:149). In 1796, bear, javelina, panther, and porcupine were added to the supposedly Athabaskan diet (Matson and Schroeder 1957:338). Today, the list has grown to include elk (although not often), mountain sheep, bear, mountain lion, bobcat, woodrats, squirrel, prairie dog, field mice, beaver, racoon, badger, birds, turkey, doves, pigeons, geese, ducks, tortoises, and snakes (Basso 1971:97; Pool 1985:54-55). Caterpillars were sometimes used to make a gruel, and bone marrow and blood were also used as subsistence supplements (Terrell 1974:43-44). After Spanish contact, Apaches also enjoyed mules, horses, sheep, and cattle.

There is, however, some controversy over a few of the items on the above list. Ogle (1970:18) states that Apaches did not eat bear, Kessell (1971:149) says bear was only hunted by religious practitioners, but Colyer (1872:6) notes that the Apache on the Gila River ate it. Likewise, in 1756, Cordero says beaver was eaten by the Apache (Kessell 1971:149) and Pool agrees (1985:55), while Ogle (1970:18) states that it was not eaten. Most researchers believe the Apache did not eat reptiles or fish (Ogle 1970:18; Basso 1971:31: Kessell 1971:159; Pool 1985:55); however, Lekson (1992b:16) says they ate fish occasionally out of the Rio Grande. Wolf and coyote were not eaten says Pool (1985:54), but Terrell (1974:43-44) says that the Cibecue Apache did consume them. Then, Pool (1985:54) says mountain lions were eaten and Terrell (1974:43-44) says only the White Mountain Apache partook of them. All seem to agree that while birds were consumed, birds of prey were not. It is not known whether or not the Apaches ate turkeys; Ferg and Kessel (1987:86) say they were kept as pets when young and then traded to the Zuni.

Growing corn, beans, and squash was never a major subsistence pursuit by the Apache, although some were more actively engaged in it than others, such as the Cibecue Apache, but not the Chiricahua (Opler 1983:370) or the Northern Tonto. However, agricultural products probably provided no more than 25 percent of any group's economic base (Kaut 1974). Small plots planted by the Apache have been recorded since the 1620s in southwestern New Mexico (Cremony 1868:217; Forrestal 1954:42; Forbes 1960:118; Pool 1985:58; Lekson 1992b:31), particularly along the Gila and San Francisco rivers. Interestingly, Benavides says that in 1630 each main village had its own recognized territory in which they planted corn and other crops (Forrestal 1954:42). The idea of permanent agricultural fields, Kaut (1974:60) believes, has provided groups with fixed points of reference and tied people to the land.

Apparently women sowed the seeds for the crops, watered them, and harvested at the proper time (Matson and Schroeder 1957:340). Seeds were also sometimes tossed near camps in sandy places, washes, or beside streams. Fields were irrigated by hand or positioned next

to springs, seeps, or runoff areas (Pool 1985:59, 61). An elderly informant tells of people in the mid-1800s creating ditches with a digging stick and making dams in creeks to water corn. Women would carry the loose dirt off in baskets (Basso 1971:95). For the Apache, growing crops was not a full-time occupation. Early accounts recount them leaving their small fields to natural influences and going off to pursue other activities, returning only at harvest time. Maize kernels were found in one Athabaskan roasting pit at Ladybug Junction on the Luna project.

In reviewing north to south subsistence rounds as proposed by most writers (with the exception of Goodwin), the logistics of obtaining desired foods would require a reverse pattern of seasonal rounds. Agave, saguaro, Spanish bayonet, prickly pear, and mesquite all ripen in summer and, more importantly, are found mostly south of the Gila and Salt rivers. Acorns are available in the fall in the higher southern areas and in the Mogollon Highlands. Piñon nuts, juniper berries, and most game are primarily available in the northern mountain zones in the fall and into early winter. Aschmann (1974:255), using Goodwin's 1942 notes, is the only scholar to suggest the Apaches may have wintered in the north and spent a part of the summer in the south. This would seem to be the correct flow of movement logistically, based on seasonal plant availability. In corroboration, McFarland (1974:25), says that in December 1885, at Soldier's Hill near Glenwood, an Apache encampment was located in a canyon with piles of wood stacked around it. But, in contrast, the several Athabaskan brush structure remains found on this project did not contain interior hearths, suggesting a warm weather occupation. To support a summer highland occupation, French (1990:62) records a group of Apaches seen on the Blue River near Alma in May 1885. There also may be a semantic problem in describing north to south movements. Lekson (1992b:36) speaks of the eastern Chiricahua (who live in the southern area) going south to the Sierra Madres in winter for agave, so that "going south" may mean Mexico to many Apache groups residing in the south, but may not necessarily mean that to those who lived in the north.

In sum, the archival and archaeological data seem to send mixed signals as to the best times to be in specific locales. So few archaeological remains have been excavated, that the issue cannot be resolved without further recovery of plant and structural remains.

Athabaskan Sites in the Mogollon Highlands

Prior to this project, no Athabaskan sites had been excavated within the Mogollon Highlands area, although several have been recorded on surveys. The OAS investigations in the Luna-Reserve areas and in the nearby Datil Mountains produced eight excavated Athabaskan sites that have been dated by radiocarbon analysis. The two sites in the Datil Mountains (Hayden et al. 1998) yielded Athabaskan pottery and C-14 calibrated intercept dates of 1590 and 1610. The six sites on the Luna project contained four hearths, four shallow brush structure depressions, three roasting pits, one pit of unknown use, and several burned areas. Only one Athabaskan sherd was recovered. All are open-air sites and five of the six were located in the same piñon-juniper zone with oak stands nearby. The 21 C-14 calibrated intercept dates are: 1400, 1420, 1430, 1440, 1475, 1490, 1530, 1560, 1630, 1640, 1640, 1660, 1660, 1670, 1680, 1690, 1730, 1735, 1750, 1810, and 1815. Given the strong possibility of the use of old wood by site occupants and the seemingly out-of-place dates on the 1400s map (Fig. 1. 22a), valid dates for these sites might not actually begin until the 1500s. Complete descriptions of these sites may be found in Volume 2.

Other Athabaskan sites in the Mogollon Highlands have been recorded on survey and include cave sites. Athabaskan sherds have been found near Reserve at the Y Canyon Cave (Martin et al. 1954:70) and Negrito Cave, and an Athabaskan olla was found at Delgado Cave (Martin et al. 1954:70). The OAS crew also found arrows, presumably Athabaskan, cached in a small niche at O Block Cave. Other sites include small stone rings at Devil's Park (Peterson 1988a:114), and rock art with flower and star patterns east of Apache Creek (R. Newton, pers. comm. 1992). Hough (1907) mentions caves along the San Francisco River, on the Blue River, near Alma, and at Saddle Mountain that contained well-preserved bows, arrows, baskets, and ceremonial paraphernalia, all thought to be Athabaskan. Likewise, the Cosgroves (Cosgrove 1947) describe several caves in the upper Gila and Mimbres areas that contain the same complex of well-preserved artifacts.

Like Archaic sites in the Mogollon Highlands, there should be many more Athabaskan sites present than are currently documented. Survey crews should be aware that the potential for finding Athabaskan sites is high. Lithic artifact scatters should be particularly examined for hearths that could produce radiocarbon or archaeomagnetic samples that would date this type of site.